ENGINEERING TECHNICAL SPECIFICATION

SECTION 11010

HEPA VACUUM CLEANER REQUIREMENTS

REVISION 0

Originator (Subject Expert): Dexter G. Lunsford 4/9/1997
Dexter G. Lunsford Date

APPROVED BY: Ronald C. Worsley 4-9-97
Ronald C. Worsley Date
Facility/Technical Engineering

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fluor Daniel Fernald, Inc.
P. O. Box 538704
Cincinnati, Ohio 45253-8704

SECTION 11010

HEPA VACUUM CLEANER REQUIREMENTS

PART I GENERAL

1.01 SECTION INCLUDES

Only HEPA rated Vacuum Cleaners will be permitted on the FEMP where the potential to vacuum hazardous or radiologically contaminated materials exists.

1.02 RELATED SECTIONS

This paragraph intentionally left blank.

1.03 REFERENCE DRAWINGS

This paragraph intentionally left blank.

1.04 REFERENCES, CODES, AND STANDARDS

A. ANSI/UL 586-1990 - high-efficiency particulate air filter units

B. Oak Ridge National Laboratory, Nuclear standard NE F.3. 45T, used by DOE contractors

1.05 SYSTEM DESCRIPTION

A. Upon receipt at the FEMP, the vacuum cleaner will be delivered to Maintenance for inspection and in-place test of HEPA filter. Failure of the vacuum cleaner to pass the in-place test will result in its rejection.

If the subcontractor performs this test they will be required to provide the test documentation to FDF.

The HEPA filter shall have the following information on or provided in writing for it: Model number, serial number, part number, rated cfm, test cfm and pressure drop, and % penetration.

The HEPA filter shall be tested at a flow rate equal to or greater than the flow rate of the vacuum cleaner.

SECTION 11010

1.06 SUBMITTALS

This paragraph intentionally left blank.

1.07 QUALITY ASSURANCE

A. RM-0012, Quality Assurance Program Description

B. Qualifications (if any?)

1.08 DELIVERY, STORAGE, AND HANDLING

A. Delivery

B. Storage

C. Handling

1.09 PROJECT CONDITION

This paragraph intentionally left blank.

1.10 SEQUENCING AND SCHEDULING

This paragraph intentionally left blank.

1.11 WARRANTY

This paragraph intentionally left blank.

1.12 MAINTENANCE

This paragraph intentionally left blank.

SECTION 11010

PART II - PRODUCTS

2.01 MANUFACTURERS

A. HEPA Vacuum units that are provided shall be one of the following manufacturers and models:

MANUFACTURER	UNIT TYPE	MODEL	CFM
Hako	Dry	C82915-09*	110 with wet Adapter assembly (P/N 800420) And inlet plug (P/N 390038)
Power	Wet/Dry		RAD VAC 2000

*HAKO Minuteman Model

HEPA Vacuum units larger than the models listed shall be submitted to Fluor Daniel-Fernald for approval.

The additional requirements shall be included with the purchase order for HEPA Vacuum Cleaners:

2.02 PRODUCTS/EQUIPMENT

This paragraph intentionally left blank.

2.03 MATERIALS

This paragraph intentionally left blank.

2.04 ACCESSORIES

This paragraph intentionally left blank.

2.05 FABRICATION

This paragraph intentionally left blank.

2.06 LABELING

This paragraph intentionally left blank.

PART III - EXECUTION

3.01 EXAMINATION

SECTION 11010

A. The subcontractor will be responsible to hookup, maintain and operate the HEPA vacuum cleaners in accordance with the Manufacturer's Operations and Maintenance Manual operating requirements and provide all consumables, such as pre-filters, HEPA filters, hose and other accessories needed to operate to HEPA requirements.

B. Upon project completion, the subcontractor shall empty contents of the HEPA vacuum cleaner under approved RWP controls and dispose of waste per project waste stream requirements. After each use, the openings on the suction line of the vacuum cleaner shall be sealed to prevent spread of contamination.

C. Each individual who uses a vacuum cleaner is responsible for verifying the vacuum cleaner is in proper operating condition per the manufacturer's pre-operation check. The individual is also responsible for complying with established work permits concerning the use of vacuum cleaners during the cleanup of radiological or hazardous materials.

D. Some example of tasks for which the use of a HEPA vacuum cleaner may be appropriate include the following (not all-inclusive):

1. General cleaning in a contaminated area.

2. Post job cleanup and decontamination in contaminated areas.

3. Cleanup and decontamination following a spill of radioactive or hazardous material except for mercury spills.

4. Removal of debris from contaminated plant systems following maintenance operations.

5. Providing negative pressure for small glove bag or glove box containments.

E. DOP Tests

Prior to initial use, FDF requires and will provide a filter integrity test (DOP test) following installation of a HEPA filter to ensure that the filter is in good condition and is properly installed. Failure of vacuum cleaner to pass the in place test will result in its rejection. The filter integrity test shall be repeated any time the vacuum cleaner is opened if opening breaks the HEPA seal, and at least every 6 (six) months. The Construction Logistics Coordinator will monitor and administer DOP test as required. The subcontractor can perform this test and provide FDF with test documentation.

F. Hoses and Extensions

Hoses and extensions used on the vacuum cleaner suction shall employ clamps or locking connectors to prevent hoses from pulling loose while in use. Joints in hoses should employ seals such as rubber O-rings to prevent leakage, or the joints should be taped.

SECTION 11010

G. Segregation of Contaminants

Vacuum cleaners are most commonly used for radioactive or asbestos work and shall be marked with the predominant waste to be clean up, such as "For Radioactive Use Only" or "For Asbestos Use Only". Vacuum cleaners used for asbestos shall not be used for general non-asbestos work. Radiological and Asbestos Work Permit provisions shall apply for this use. Other contaminants or hazardous materials, such as mercury, may require the exclusive use of a HEPA vacuum unit with special accessories (e.g. cyclone separator, special treated charcoal filters, etc.) To maintain a segregation of the contaminant or hazardous material and to provide additional protection of personnel using the equipment. Vacuum cleaners shall be stored in a secure area to prevent unauthorized use.

H. Use in Non-Contaminated Area

HEPA Vacuum cleaners may be specifically designated and marked for use only in areas in which no contamination is expected. Only these vacuum cleaners shall be used in clean areas. The vacuum cleaners may be surveyed by FDF periodically to verify that they have not been contaminated.

I. Use with Liquids

Vacuuming liquids or wet solids can result in damage to the HEPA filter or motor and can present an electrical safety problem if an electric vacuum cleaner is used. To prevent such problems, a HEPA vacuum specified for wet/dry use shall be used.

The preferred method of collecting liquids is by the use of a catch tank or knock-out drum connected to the vacuum cleaner suction line. The catch tank should be removed and emptied when full to minimize liquids entering the vacuum cleaner itself. Any time an electric vacuum cleaner is used to collect liquids, it shall be fitted with a float switch to de-energize the motor before it fills up to the point where the motor would be wetted. Electric vacuum cleaners shall not be used to collect flammable or combustible liquids.

J. Vacuum Cleaner Head Removal

Removal of the vacuum cleaner head shall take place in a room, containment, bag, or tent established to control the spread of airborne contamination. The area should include complete physical boundaries to isolate it from surrounding area and should be equipped with a HEPA-filtered ventilation system. The type of containment device should be adequate for the expected radiological or other contaminant conditions. General Area or personal air samples may be taken by FDF during the dumping process. Protective clothing and respiratory protection equipment shall be specified by the permits required for the work operation. If removal of the head breaks the HEPA filter seal or exposes the HEPA filters then the unit will have to be retested, before being used again.

SECTION 11010

3.02 PREPARATION

This paragraph intentionally left blank.

3.03 ERECTION/INSTALLATION/APPLICATION

HEPA filter elements are to operate from ambient temperature up to 250°F.

3.04 QUALITY CONTROL

Provide in-service inspection, hold point witness and record results of test performed.

3.05 ADJUSTING

This paragraph intentionally left blank.

3.06 CLEANING

This paragraph intentionally left blank.

3.07 DEMONSTRATION

This paragraph intentionally left blank.

3.08 PROTECTION

This paragraph intentionally left blank.

3.09 SCHEDULE

This paragraph intentionally left blank.

END OF SECTION